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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 14

Application Number: 09/887,144
Filing Date: June 22, 2001
Appellant(s): CASSEL ET AL.

Steven J. Tytran
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 16 October 2003.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 17,25,26 and 30-32 (Group 1) and claims 18-21 (Group 2) do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

A substantially correct copy of appealed claims 17-21,25,26 an 30-32 appears on page 1 and 2 of the Appendix to the appellant's brief. The minor errors are as follows: In Claim 30, last line, "he" should be --the--.

(9) Prior Art of Record

6,275,198	KENOUN et al.	8-2001

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 17-21,25,26 and 30-32 stand rejected under 35 U.S.C. 102(e). This rejection is set forth in prior Office Action, Paper No. 10.

Specifically, regarding Claims 17 and 30, Figure 3 of Kenoun et al illustrates the physical structure that defines the electrical properties of an antenna for a portable communication apparatus (see 70 in Figure 4), and comprises a radiator 10 having a first end 16 (i.e., the coupling portion) to be connected to radio circuitry (described at column 2, lines 44-61), the antenna has a second end, that end remote and distal to the coupling portion 16, and illustrated in Figure 3 where the lead line for numeral 68 points. The radiator 10 includes a feedback conductor 58 (i.e., the second segment) having a first end (at numeral 68) and extending along the radiator 10 in a first direction, from the second end (at 68) of the radiator towards the first end (at 16) of the radiator 10, wherein the feedback conductor 58 includes a second end (at offset portion 64), extending along the radiator 10 in a second direction towards the second end (at 68) of the radiator 10, for tuning a frequency range of the antenna. The portion 64 (i.e., the one-turn, 180 degree loop portion) is considered part of the feedback conductor, as claimed.

Regarding Claim 18, the radiator is an elongated helical radiator 66.

Regarding Claim 19, the second end (at 64) of the feedback conductor 58 is wound in at least one turn 64 outside the helical radiator near (head portion) the first end of the helical conductor 66.

Regarding Claim 20, the second end (at 64) of the feedback conductor 58 is isolated (e.g., with respect to the conductor 56 and the top portion 44, where it is "coupled" to the portion 44, but not connected to it, and therefore is isolated) and bent substantially 180 degrees, wherein at least a portion (the right side of the loop 64) of the isolated end of the feedback conductor 58 extends inside at least a portion of the helical radiator (the right-side portion of the loop 64 connects or transitions into the straight portion 58 which is inside of the helical radiator 66) substantially in parallel with a longitudinal axis of the helical radiator.

Regarding Claim 21, the second end of the feedback conductor is isolated and bent substantially 180 degrees, wherein at least a portion, i.e., the left side of the loop 64, of the isolated end of the feedback conductor 58 extends outside the helical radiator (i.e., the left side of portion 64 is not within the helix 66) substantially in parallel with a longitudinal axis of the helical radiator.

Regarding Claims 25,26,31 and 32, the radiator and the feedback conductor are molded into a dielectric material, and thus enclosed in a dielectric radome, as a stub antenna and mounted on a portable/mobile telephone (Figures 1,2 and 4 of Kenoun et al).

(11) Response to Argument

Several issues have been raised in the Arguments of the Brief, beginning on page 6 and ending on page 16, and will be addressed in the order they appear, as follows.

In the paragraphs on pages 6 and 7 of the Brief under the heading "1. Kenoun", appellant sets forth the physical characteristics of the invention and points out the portions of the radiating structure that are responsible for resonating the antenna on different frequency bands.

In the paragraphs on pages 7 and 8 of the Brief under the heading "2. Features of the Claims", appellant characterizes the physical elements of the invention of Claim 17 (Group 1), using the nomenclature of the specification, and points out which elements are responsible for the electrical properties, such as controlling and matching input impedance and tuning the frequency band of the antenna.

In the section "3. Errors in Examiner's Rejection" of the Brief, pages 8-14, appellant attempts to show that the claim language does not read on the Kenoun structure. Specifically, appellant states that the portion 64 in Kenoun is not responsible "for tuning a frequency range of the antenna", as set forth in the last line of Claims 17 and 30. However, the final Office action rejection specifically identifies the feedback conductor as reference numeral 58 and the second end thereof (near the electrical connector 12,44,16) connects to a "loop portion" 64 that extends back to the second end of the radiator 10. The portion 64 is considered part of the feedback conductor defined, interrelated and as recited in Claims 17 and 30. The element 64 is the portion of the feedback conductor before it connects to the helical portion 66. As noted by

appellant, Kenoun teaches that the portion 64 of the feedback conductor is responsible for the size or the bandwidth at the first, lower resonant frequency band (and the second higher frequency band). The complete description of the effect the portion 64 has on the antenna is found in the third complete paragraph in column 4 of Kenoun. As noted in the final Office action rejection and herein, Kenoun shows each and every element recited in Claims 17 and 30. Appellant focuses on the last clause of Claims 17 and 30 in this appeal. The clause, "for tuning a frequency range of the antenna" does include the function of the feedback conductor portion 64 because changing the bandwidth (or frequency range) is characterized as tuning the frequency range of the antenna. This clause means tuning. The term "tuned" is defined as "adjusted to resonate or operate at a specified frequency". The following analysis proves this point. If the bandwidth is changed, due to the change in length of the proximity of the portion 66 with the head portion 44 of the portion 12, by either increasing or decreasing that bandwidth, there is a function of "tuning a frequency range of the antenna", as claimed. For example, if the antenna is initially designed to have a relatively narrow bandwidth and that bandwidth is widened, by increasing the length of the portion 64 to move the helical portion 66 away from the head portion 44 of portion 12 (as directed by Kenoun at column 4, lines 56-61), then the end result is the claimed function of "for tuning a frequency range of the antenna". In this example, when the bandwidth is increased, there are more frequencies that the antenna may operate on. Therefore, contrary to appellant's arguments, the functional and final clause of Claims 17 and 30 is obtained in the structure of Kenoun.

Appellant states on page 9 of the Brief, second paragraph, second sentence, that there is "an already tuned frequency band." But this is not entirely so according to the aforementioned directions given by Kenoun in order to widen the usable bandwidth of the antenna. By widening the bandwidth, this provides more frequencies to which the antenna may be used. This is important in cellular or frequency-hopping applications of the antenna because it would extend the number of channels or frequencies the radiophone could use. It appears that appellant is confusing "active tuning" or perhaps "tuned to", with something already "tuned" or preset at the antenna factory or when the antenna is designed, thus is fixed until someone in the field varies the length of the wire as by a mere tweaking of the antenna's frequency or matching condition. For example, the terms "active tuning" or "tuned to" are the same as changing a band-switch from AM to FM on a radio; or perhaps, the phrase "tuned to" where a specific channel or frequency is selected within a particular band. However, the last clause in Claims 17 and 30 certainly encompasses either interpretation.

Appellant emphasizes in the second paragraph on page 9 of the Brief, that "Kenoun describes in detail that the first and second segments 56,58 are used to tune the resonant modes of the antenna 10, and the third segment 62, including its offset portion 64, is used to vary the bandwidth of those already tuned modes of resonance." The characterization is set forth in column 4, first full paragraph, but there, the segments 56,58 are said to be varied in length to determine the modes of resonance.

In the paragraph bridging pages 9 and 10 of the Brief, appellant correctly points out the "plain meaning" cited in MPEP 2111.01 and the dictionary definition of the term

"tune". Plain meaning is given here because the specification lacks a specific definition of the last clause in Claims 17 and 30. Adjusting the range of frequencies means tuning. Kenoun allows the bandwidth to be changed and therefore the frequency range of the antenna is tuned. Tuning a notch filter, for example, is actually varying the width of the frequency response. The filter is tunable. Kenoun provides a means (e.g., the length and position of loop portion 64 with respect to the top portion 44) for tuning the frequency range of the antenna by changing the bandwidth of the frequency band. If the bandwidth is made larger, by changing the length of portion 64, as set forth in Kenoun and above, there are more frequencies to be tuned to and the antenna is allowed to operate on those additional frequencies.

On page 10 of the Brief, first and second paragraphs, appellant describes how the elements in the invention allow resonance and resonant frequency ranges are shifted. This is effectively the same as widening a frequency band described by Kenoun.

In the paragraphs on pages 11 and 12 of the Brief, appellant describes differences in the inventive structure and Kenoun, but those structural differences are unclaimed.

On pages 12-14 of the Brief, appellant argues that the conductor 58 of Kenoun is not a feedback conductor equivalent to the one in the invention. Appellant points out on page 12 of the Brief, that the feedback conductor 58 of Kenoun does not "control the input impedance of the antenna, as required by the claims." The claims are silent as to

any function the feedback conductor performs and thus this argument is not commensurate with the scope of the claims.

In the paragraph bridging pages 12 and 13, and those on page 13 of the Brief, appellant argues the definition of "feedback". There is feedback provided by the conductor 58 in Kenoun because the element 64 has a specific relationship or distance from the connector 12,44 in order to tune the bandwidth of resonance frequencies.

In the paragraph bridging pages 13 and 14 of the Brief, appellant describes currents in the elements of the invention and input impedance, but these arguments are also not commensurate with the scope of the claims. There are currents flowing in the feedback conductor 58 of Kenoun and there is a coupling to the input element (44) via the portion 64.

Pages 14-16 of the Brief presents arguments for the second group of claims. On pages 15 and 16 of the Brief, appellant argues that the Kenoun reference does not show a helical radiator and that the first end of that radiator is not connected to a portable radio. However, the radiator does include a helical portion 66. Its first end is connected through portions 64,58,56 and 12 to the first end of the radiator at 16, which is threaded and to be inserted into the receptacle of the handheld phone 70 shown in Figure 4 of Kenoun. The entire radiating portion need not be helical. The claim does not call for such a limitation. Helical antennas may have various sections associated with them and most often are connected via a straight portion of a wire to a connector. The helical portion 66 is connected to the radio connector, via other wire portions. Kenoun therefore meets the limitations of the claims.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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March 19, 2004

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